EG&G ER Program
Rocky Flats Plant

(04/06/90)

ER PROGRAM DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. 8907L910 **Site** Solar Ponds
Laboratory Roy F. Weston - Lionville **No. of Samples/Matrix** 6/Water
SOW # 10/86 (Rev. 2/88) **Reviewer Org.** TechLaw, Inc.
Sample Numbers SW093004, SW095004, SW094004, SW094004D, SW094004FB, TB070589004

Data Assessment Summary

		VOA	Comments
1.	**Holding Times**	A	Action Item 1
2.	**GC/MS Tune/Instr. Perf.**	V	
3.	**Calibrations**	A	Action Items 2,3; Comment 1
4.	**Blanks**	A	Action Item 4
5.	**Surrogates**	V	
6.	**Matrix Spike/Dup.**	X	Comment 2
7.	**Other QC**	X	Comment 3
8.	**Internal Standards**	V	
9.	**Compound Identification**	X	Comment 4
10.	**System Performance**	V	
11.	**Overall Assessment**	A	Data acceptable with qualifications.

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be acceptable with qualifications. Acceptable, qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged. (Refer to attached Results Summary Tables.)

REVIEWED FOR CLASSIFICATION

By K. L. Patterson (UNP)

Date 10/05/91

Action Items: 1) Non-detected results for aromatic compounds in all samples are estimated and undetected (UJ) because holding time exceeded seven days.

2) In the initial calibration of 7/11/89, Acetones %RSD exceeded 30%. Therefore, the positive result for Acetone in sample SW09400FB is estimated (J). The positive results in the other samples would have been estimated had blank criteria been met. See Action Item 4.

3) The RRFs for 2-Butanone and 4-Methyl-2-pentanone in the initial and both continuing calibrations including RRFs for 2-Hexanone in both continuing calibrations were less than 0.05. Therefore the non-detected results for these compounds are rejected (R) in all samples. The positive result for 2-Butanone in sample SW094004FB is estimated (J).

4) As a result of blank contamination, the positive results for Methylene Chloride in all samples and the positive result for Acetone in all samples except SW094004FB are estimated and undetected (UJ) as per the Functional Guidelines criteria (10x rule).

Comments: 1) Vinyl Acetate's and 1,1,2,2-Tetrachloroethane's %Ds exceeded 25% in the 7/14/89 continuing calibration. No action is taken because these compounds were undetected.

2) Trichloroethene did not meet the MS/MSD %Recovery criteria. No action is taken because results are not qualified solely on MS/MSD data.

3) Carbon Disulfide was detected in sample SW094004 but was not detected in its duplicate.

4) A Tentatively Identified Compound (TIC) was found in samples SW093004, TB070589004, and SW094004FB. This same peak appears to be present in samples SW095004 and SW094004 but it was not reported, identified or quantitated. An unknown peak observed in sample SW093004 was not reported, identified or quantitated.

Note: Data Summary Tables are attached.

William T Fee — 5/8/90

Reviewer Signature — Date

TABLE #: 8907L910

SITE NAME: Solar Ponds

CLP VOLATILE ORGANIC ANALYSIS: Low Water

ANALYTICAL RESULTS (ppb)

Sample Location											
Sample Number		VBLK	SW093004	SW095004	SW094004	SW094004FB	TB070589004	VBLK	SW094004D		
Sampling Date			7/5/89	7/5/89	7/5/89	7/5/89	7/5/89		7/5/89		
Remarks		Method Blank				Field Blank	Trip Blank	Method Blank	Duplicate		
Volatile Compound	CRQL ug/L (ppb)	DQ	DQ	DQ	DQ	DQ	DQ	DQ	DQ		
Chloromethane	10		10 U V	10 U V	10 U V	10 U V	10 U V		10 U V		
Bromomethane	10		10 U V	10 U V	10 U V	10 U V	10 U V		10 U V		
Vinyl chloride	10		10 U V	10 U V	10 U V	10 U V	10 U V		10 U V		
Chloroethane	10		10 U V	10 U V	10 U V	10 U V	10 U V		10 U V		
Methylene chloride	5	5 ppb	5 UJ A	5 UJ A	10 UJ A	11 UJ A	8 UJ A	5 ppb	5 UJ A		
Acetone	10	3 ppb	17 UJ A	10 UJ A	11 UJ A	39 J A	15 UJ A	1 ppb	10 UJ A		
Carbon disulfide	5		5 U V	5 U V	19 V	5 U V	5 U V		5 U V		
1,1-Dichloroethene	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
1,1-Dichloroethane	5		3 J A	5 U V	5 U V	5 U V	5 U V		5 U V		
1,2-Dichloroethene (Total)	5		1 J A	5 U V	5 U V	5 U V	5 U V		5 U V		
Chloroform	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
1,2-Dichloroethane	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
2-Butanone	10		10 U R	10 U R	10 U R	13 J A	10 U R		10 U R		
1,1,1-Trichloroethane	5		2 J A	5 U V	5 U V	5 U V	5 U V		5 U V		
Carbon tetrachloride	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
Vinyl acetate	10		10 U V	10 U V	10 U V	10 U V	10 U V		10 U V		
Bromodichloromethane	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
1,2-Dichloropropane	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
cis-1,3-Dichloropropene	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
Trichloroethene	5		1 J A	2 J A	2 J A	5 U V	5 U V		2 J A		
Dibromochloromethane	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
1,1,2-Trichloroethane	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
Benzene	5		5 UJ A	5 UJ A	5 UJ A	5 UJ A	5 UJ A		5 UJ A		
trans-1,3-Dichloropropene	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
Bromoform	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
4-Methyl-2-pentanone	10		10 U R	10 U R	10 U R	10 U R	10 U R		10 U R		
2-Hexanone	10		10 U R	10 U R	10 U R	10 U R	10 U R	2 ppb	10 U R		
Tetrachloroethene	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
1,1,2,2-Tetrachloroethane	5		5 U V	5 U V	5 U V	5 U V	5 U V		5 U V		
Toluene	5		5 UJ A	5 UJ A	5 UJ A	5 UJ A	5 UJ A		5 UJ A		
Chlorobenzene	5		5 UJ A	5 UJ A	5 UJ A	5 UJ A	5 UJ A		5 UJ A		
Ethylbenzene	5		5 UJ A	5 UJ A	5 UJ A	5 UJ A	5 UJ A		5 UJ A		
Styrene	5		5 UJ A	5 UJ A	5 UJ A	5 UJ A	5 UJ A		5 UJ A		
Xylenes (Total)	5		5 UJ A	5 UJ A	5 UJ A	5 UJ A	5 UJ A		5 UJ A		
Total Organic Concentration (ppb)		8	7	2	21	52	0	8	2		

U Indicates the compound was not detected above the Required Quantitation Limit.

J Quantitation is approximate due to limitations identified during the quality control review.

-E Exceeds calibration range, dilute & reanalyze.

CRQL Contract Required Quantitation Limit in Micrograms per Liter (ug/L), Parts per billion (ppb).

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

L910L/rk48

3

Stockton

WESTON Analytics Use Only
8907L910

Custody Transfer Record/Lab Work Request

(Yellow) WWB0705S8900

WESTON

Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd. 7-7-89 Date Due 8-4-89
RFW Contact: Janell Bergman
Client Contact/Phone: (303) 980 6800

Refrigerator#	✓	✓	✓	✓ J.W.	DOUBLE VOLUME FOR MS/MSD
#/Type Container	Glass	Plastic	Plastic	Plastic	
Volume	40ml	1-L	1-L	1-L	
Preservative	None	NaOH	HNO3	HNO3	
ANALYSES REQUESTED →	1	4	*5	*6	

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	OO2H	ICNTO	See below	See below	
001	SW093004	W	7/5/89	X	X	X	X	
2	SW095004	W		X	X	X	X	
3	SW094004 MS/MSD	W		X	X	X	X	RADIOACTIVE
4	SW094004 D	W		X	X	X	X	RADIOACTIVE
	~~SW094004 MS/MSD~~	W		X	X	X	X	RADIOACTIVE represented above
5	SW094004 FB	W		X	X	X	X	RADIOACTIVE
6	TB07058900 4	W		X				RADIOACTIVE
7	SW093004					✓		FULL CLP
8	SW095004					✓		RADIOACTIVE
9	SW094004 MS/MSD					✓		RADIOACTIVE
10	SW094004 Dup.					✓		[redacted]
11	SW094004 F.B.		J.W.	[redacted]		✓	(MSLSOW)	MICK ROCKSO

*5 = MMOSO, MSRSO, MCSSO, MLISO, MSNSO
*6 = MMOTO, MSRTO, MCSTO, MLITO, MSNTO, MHSLTOW, ROCKTO, MICW

Matrix:
S - Soil, SE - Sediment, SO - Solid
W - Water, O - Oil, A - Air, WI - Wipe
DS - Drum Solids, DL - Drum Liquids, F - Fish, L - EP/TCLP Leachate
X - Other

Special Instructions: (1) - vos 2 - bna 3 - pest/pcb (4) - cyanide
(5) - filtered tcl metals Mo, Sr, Cs, Li, Sn
(6) - unfiltered tcl metals Mo, Sr, Cs, Li, Sn

Item/Reason	Relinquished by	Received by	Date	Time
	[illegible]	F. McDaniel	7-6-89	1000
	F. McDaniel	Fed Ex	7-6-89	1700
LAB RECEIPT	Fed Ex	J. Jeffrey Welch	7/7/89	0930
CN	[illegible]	[illegible]	7/13	8:00
VOA	[illegible]	[illegible]	7/13	9AM
TN Stora	[illegible]	[illegible]	7/13	2:30

Item/Reason	Relinquished by	Received by	Date	Time
CN	[illegible]	[illegible]	7/17	8:00
CN Storage	[illegible]	[illegible]	7/17	4:30

WESTON Analytics Use Only
Samples Were:
1 (Shipped) or Hand-Delivered
NOTES:
2 Ambient or (Chilled)
NOTES:
3 Received Broken/Leaking (Improperly Sealed) Y (N)
NOTES:
4 Properly Preserved (Y) N
NOTES:
5 Received Within Holding Times (Y) N
NOTES:

COC Tape Was:
1 Present on Outer Package (Y) N
2 Unbroken on Outer Package (Y) N
3 Present on Sample (Y) N
4 Unbroken on Sample (Y) N
NOTES: J.W. 7/7/89

COC Record Was:
1 Present Upon Receipt of Samples (Y) N

Discrepancies Between Sample Labels and COC Record? Y (N)
NOTES:

RFW 21-21-001/A-12/88

SWC95004 = less than 20 pCi/l
SW095004 - less than 25 pCi/l

7-115

EG&G ER Program
Rocky Flats Plant

(03/26/90)

ER PROGRAM DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. 8907L910 **Site** Site Background Characterization

Laboratory Roy F. Weston - Lionville **No. of Samples/Matrix** 10/Water

SOW # 7/87 **Reviewer Org.** TechLaw, Inc.

Sample Numbers SW093004 (total), SW095004 (total), SW094004 (total), SW094004D (total), SW094004FB (total), SW093004 (soluble), SW095004 (soluble), SW094004 (soluble), SW094004D (soluble), SW094004FB (soluble)

Data Assessment Summary

	ICP	AA	Hg	CN	Comments
1. **Holding Times**	V	V	V	V	
2. **Calibrations**	A	V	V	V	Action Items 1-2
3. **Blanks**	A	A	V	V	Action Items 3-15
4. **ICP Interference Check Sample**	A	N/A	N/A	N/A	Action Items 16-18
5. **Lab Control Sample Results**	V	V	V	V	
6. **Duplicate Sample Results**	A	V	V	V	Action Item 19
7. **Matrix Spike Sample Results**	V	A	V	V	Action Items 20-23
8. **Method of Standard Addition**	N/A	V	N/A	N/A	
9. **Serial Dilution**	V	N/A	N/A	N/A	
10. **Sample Verification**	V	V	V	V	
11. **Other QC**	X	V	V	V	Comment 1
12. **Overall Assessment**	A	A	V	V	Data valid, or acceptable with qualifications

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

N/A = Not applicable.

Data Quality: Data contained in this batch were reviewed and found to be valid, or acceptable with qualifications. Acceptable, qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged. (Refer to attached Results Summary Tables).

Action Items: 1) The Zinc value for SW093004 (soluble) is estimated (J) because the CRDL check sample recovery criteria were not met.

2) The Antimony values for SW094004FB (total and soluble) are estimated and undetected (UJ) and all remaining Antimony values are estimated (J) because the CRDL check sample recovery criteria were not met.

3) The Arsenic value for SW093004 (total) is estimated (J) and all remaining Arsenic values are rejected (R) because of negative bias indicated in the blanks.

4) The Aluminum value for SW095004 (soluble) is estimated (J) because of negative bias indicated in the blanks.

5) The Chromium values for SW093004 (total) and SW094004 (total) are rejected (R) because of negative bias indicated in the blanks.

6) The Potassium values for SW093004 (total and soluble) are estimated and undetected (UJ) because Potassium values >IDL were found in the blanks.

7) The Aluminum values for SW093004 (total and soluble) and SW094004FB (total and soluble) are estimated and undetected (UJ) because Aluminum values >IDL were found in the blanks.

8) All Beryllium values are estimated and undetected (UJ) because Beryllium values >IDL were found in the blanks.

9) All Chromium values except SW093004 (total) and SW094004 (total) are estimated and undetected (UJ) because Chromium values >IDL were found in the blanks.

10) The Iron and Magnesium values for SW094004FB (total and soluble) are estimated and undetected (UJ) because analyte values >IDL were found in the blanks.

11) The Lead value for SW094004D (soluble) is rejected (R) because of negative bias indicated in the blanks.

12) All Lead values except SW094004D (soluble) are estimated and undetected (UJ) because Lead values >IDL were found in the blanks.

13) The Potassium values for SW094004FB (total and soluble) are rejected (R) because of negative bias indicated in the blanks.

14) The Sodium value for SW094004FB (total) is estimated (J) because of negative bias indicated in the blanks.

Action Items: (cont) 15) The Zinc values for SW094004 (soluble), SW094004D (soluble), and SW094004FB (total and soluble) are estimated and undetected (UJ) because Zinc values >IDL were found in the blanks.

16) All Copper and Manganese values except SW093004 (soluble) and SW094004FB (total and soluble) are estimated (J) because of Calcium interference indicated in the interference check sample.

17) All Silver values except SW093004 (soluble) and SW094004FB (total and soluble) are rejected (R) because of Calcium interference indicated in the interference check sample.

18) The Zinc values for SW093004 (total), SW095004 (total and soluble), SW094004 (total), and SW094004D (total) are estimated (J) because of Calcium interference indicated in the interference check sample.

19) All Iron values except SW094004FB (total and soluble) are estimated (J) because the duplicate precision criteria were not met.

20) All Strontium values are estimated (J) because the pre-digestion matrix spike recovery criteria were not met.

21) The Silver values for SW093004 (soluble) and SW094004FB (total and soluble) are estimated and undetected (UJ) because the pre-digestion matrix spike recovery criteria were not met.

22) The Thallium value for SW093004 (total) is estimated (J) and all remaining Thallium values are estimated and undetected (UJ) because the pre-digestion matrix spike recovery criteria were not met.

23) The Selenium values for SW093004 (total and soluble) are estimated (J) and the value for SW094004D is estimated and undetected (UJ) because the post-digestion matrix spike recovery criteria were not met.

Comments: 1) Several transcription errors were found on the Weston report format and in the EPA Form I's.

Note: Data Summary Tables are attached.

Robert J. Thiele — Reviewer Signature

3/26/90 — Date

TABLE #: 8907L910 Page 1 of 1

SITE NAME: Site Background Characterization

CLP WATER INORGANIC ANALYSIS: Low Water ANALYTICAL RESULTS (ug/L)

Sample Location																						
Sample Number			SW093004		SW093004		SW095004		SW095004		SW094004		SW094004		SW094004D		SW094004D		SW094004FB		SW094004FB	
Sample Date			7/5/89		7/5/89		7/5/89		7/5/89		7/5/89		7/5/89		7/5/89		7/5/89		7/5/89		7/5/89	
Remarks			Total		Soluble		Total		Soluble		Total		Soluble		Total		Soluble		Total		Soluble	
Inorganic Analyte		DL ug/L		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ
Aluminum	Al	200	33.4 UJ	A	112 UJ	A	386	V	208 J	A	256	V	231	V	251	V	233	V	42.8 UJ	A	61.0 UJ	A
Antimony	Sb	60	69.2 J	A	37.1 J	A	142 J	A	125 J	A	138 J	A	150 J	A	125 J	A	144 J	A	26.5 UJ	A	26.5 UJ	A
Arsenic	As	10	0.80 J	A	0.80 U	R	0.80 U	R	0.80 U	R	0.80 U	R	0.80 U	R	0.80 U	R	0.80 U	R	0.80 U	R	0.80 U	R
Barium	Ba	200	165	V	157	V	156	V	161	V	160	V	154	V	160	V	150	V	5.6 U	V	5.6 U	V
Beryllium	Be	5	1.1 UJ	A	0.80 UJ	A	1.1 UJ	A	1.4 UJ	A	1.7 UJ	A	1.7 UJ	A	1.4 UJ	A	1.7 UJ	A	0.60 UJ	A	0.80 UJ	A
Cadmium	Cd	5	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V	4.5 U	V
Calcium	Ca	5000	354000	V	101000	V	349000	V	358000	V	354000	V	365000	V	349000	V	349000	V	311	V	342	V
Cesium	Cs	1000	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V
Chromium	Cr	10	5.3 U	R	11.7 UJ	A	16.9 UJ	A	15.6 UJ	A	5.3 U	R	20.6 UJ	A	27.0 UJ	A	7.5 UJ	A	10.7 UJ	A	21.3 UJ	A
Cobalt	Co	50	4.6 U	V	4.2 U	V	4.2 U	V	4.2 U	V	5.0	V	4.2 U	V	4.2	V	4.2 U	V	4.2 U	V	4.2 U	V
Copper	Cu	25	19.5 J	A	10.9	V	24.7 J	A	20.3 J	A	25.2 J	A	23.8 J	A	19.3 J	A	24.2 J	A	5.2	V	8.2	V
Iron	Fe	100	1400 J	A	103 J	A	230 J	A	89.1 J	A	176 J	A	89.1 J	A	180 J	A	87.0 J	A	18.5 UJ	A	18.5 UJ	A
Lead	Pb	5	2.3 UJ	A	1.9 UJ	A	1.0 UJ	A	1.0 UJ	A	1.1 UJ	A	0.80 UJ	A	1.3 UJ	A	0.50 U	R	1.4 UJ	A	3.5 UJ	A
Lithium	Li	100	100 U	V	100 U	V	420	V	443	V	436	V	437	V	425	V	413	V	100 U	V	100 U	V
Magnesium	Mg	5000	24000	V	24200	V	91500	V	96000	V	94200	V	92000	V	92500	V	89800	V	98.5 UJ	A	98.8 UJ	A
Manganese	Mn	15	999 J	A	1020	V	31.8 J	A	17.9 J	A	21.6 J	A	17.9 J	A	22.1 J	A	17.9 J	A	1.8	V	2.8	V
Mercury	Hg	0.2	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V	0.20 U	V
Molybdenum	Mo	200	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V	100 U	V
Nickel	Ni	40	9.0 U	V	9.0 U	V	9.0 U	V	11.6	V	9.0 U	V	10.5	V	9.9	V	9.0 U	V	9.0 U	V	9.0 U	V
Potassium	K	5000	2900 UJ	A	2500 UJ	A	81000	V	84000	V	83900	V	85200	V	82200	V	81000	V	540 U	R	540 U	R
Selenium	Se	5	2.6 J	A	1.6 J	A	8.8	V	7.6	V	10.0	V	10.0	V	8.2	V	9.2	V	1.3 UJ	A	1.3 U	V
Silver	Ag	10	6.2 U	R	6.2 UJ	A	6.2 U	R	6.2 U	R	6.2 U	R	6.2 U	R	6.2 U	R	6.2 U	R	6.2 UJ	A	6.2 UJ	A
Sodium	Na	5000	50000	V	51000	V	480000	V	50300	V	506000	V	487000	V	498000	V	475000	V	400 J	A	730	V
Strontium	Sr	200	620 J	A	629 J	A	2770 J	A	2930 J	A	2860 J	A	2770 J	A	2830 J	A	2700 J	A	100 UJ	A	100 UJ	A
Thallium	Tl	10	3.7 J	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A	1.9 UJ	A
Tin	Sn	200	100 U	V	100 U	V	147	V	127	V	131	V	130	V	127	V	134	V	100 U	V	100 U	V
Vanadium	V	50	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V	8.1 U	V
Zinc	Zn	20	96.6 J	A	40.0 J	A	68.5 J	A	40.0 J	A	93.3 J	A	30.0 UJ	A	91.4 J	A	24.3 UJ	A	12.9 UJ	A	11.4 UJ	A
Cyanide		10	10.0 U	V	N/R		10.0 U	V	N/R		10.0 U	V	N/R		10.0 U	V	N/R		10.0 U	V	N/R	

E Estimated by the Laboratory

U Indicates the compound was not detected above the Instrument Quantitation Limit

J Quantitation is approximate due to limitations identified during the quality control review

DL Detection Limit in Micrograms per Liter (ug/L)

N/R Not reported

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

L910t/eg03j

stockton

Yellow WWB070558 90

WESTON Analytics Use Only
8907L910

Custody Transfer Record/Lab Work Request

WESTON

Client: Rockwell (Rocky Flats)
Work Order: 2029 33 04
Date Rec'd. 7-7-89 Date Due 8-4-89
RFW Contact: Janell Bergman
Client Contact/Phone: (303) 980 6800

Refrigerator#	✓	✓	✓	✓ J.W.	DOUBLE VOLUME		
#/Type Container	Glass	Plastic	Plastic	Plastic	FOR MS/MSD		
Volume	40 ml	1-L	1-L	1-L			
Preservative	None	NaOH	HNO3	HNO3			
ANALYSES REQUESTED	1	4	*5	*6			

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected	1 (VOA)	4 (CN)	*5 (See below)	*6 (See below)	Notes
001	SW093004	W	7/5/89	X	X	X	X	
2	SW095004	W		X	X	X	X	RADIOACTIVE
3	SW094004 MS/MSD	W		X	X	X	X	RADIOACTIVE
4	SW094004D	W		X	X	X	X	RADIOACTIVE
	~~SW094004 MS/MSD~~	W		X	X	X	X	represented above
5	SW094004 FB	W		X	X	X	X	RADIOACTIVE
6	TB070589004	W		X				RADIOACTIVE
7	SW093004					✓		FULL CLP
8	SW095004					✓		RADIOACTIVE
9	SW094004 MS/MSD					✓		RADIOACTIVE
10	SW094004 Dup.					✓		~~RADIOACTIVE~~
11	SW094004 F.B.		J.W.	~~RADIOACTIVE~~		✓ (MNSLSOW)		MICW ROCKS

*5 = MMOSO, MSPSO, MCSSO, MLTSO, MSNSO
*6 = MMOTO, MSRTO, MCSTO, MLITO, MSNTO
MNSLTOW ROCKTO MICW

Matrix: S - Soil, SE - Sediment, SO - Solid, W - Water, O - Oil, A - Air, WI - Wipe, DS - Drum Solids, DL - Drum Liquids, F - Fish, L - EP/TCLP Leachate, X - Other

Special Instructions: (1) - vos 2 - bna 3 - pest/pcb (4) - cyanide
(5) - filtered tcl metals Mo, Sr, Cs, Li, Sn
(6) - unfiltered tcl metals Mo, Sr, Cs, Li, Sn

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	[illegible]	[illegible]	7/6/89	1000	CN	[illegible]	[illegible]	7/17	8:00
	[illegible]	Fed Ex	7/6/89	1700	CN Store	[illegible]	[illegible]	7/17	4:30
LAB RECEIPT	Fed Ex	J. Jeffrey Walsh	7/7/89	0930	Hg (all)	[illegible]	Jeffrey Walsh	8/1/89	1030
CN	[illegible]	[illegible]	7/13	8:00	Hg return	Jeffrey Walsh	[illegible]	8/1/89	1430
VOA	[illegible]	[illegible]	7/13	9AM	Hg (5-11 only)	[illegible]	Jeffrey Walsh	8/2/89	0930
[illegible]	[illegible]	[illegible]	7/13	2:30					

WESTON Analytics Use Only	
Samples Were: 1 (Shipped) or Hand-Delivered NOTES:	
2 Ambient or (Chilled) NOTES:	
3 Received Broken/Leaking (Improperly Sealed) Y (N) NOTES:	
4 Properly Preserved (Y) N NOTES:	
5 Received Within Holding Times (Y) N NOTES:	
COC Tape Was: 1 Present on Outer Package (Y) N	
2 Unbroken on Outer Package (Y) N	
3 Present on Sample (Y) N	
4 Unbroken on Sample (Y) N NOTES: J.W. 7/7/89	
COC Record Was: 1 Present Upon Receipt of Samples (Y) N	
Discrepancies Between Sample Labels and COC Record? Y (N) NOTES:	

RFW 21-21-001/A-12/88 SW093004 = less than 200 cc's

ACCU-LABS RESEARCH, INC.
TOTAL RADIOCHEMISTRY
DATA SUMMARY REPORT

RFW Batch Number: | Client: ROCKWELL (ROCKY FLATS) |

Sample Information

RFW Batch ID:	3101-251-100	3101-252-100	3101-253-100
Customer ID:	SW093004	SW095004	SW094004
Laboratory ID:	9612-30910-5-1	9612-30910-5-2	9612-30910-5-3
Collection Date:	07/05/89	07/05/89	07/05/89

Radio Chemistry

Gross Alpha	14 ± 5	pci/l	5	62 ± 27	pci/l	31	64 ± 26	pci/l	28
Gross Beta	20 ± 3	pci/l	4	160 ± 20	pci/l	19	140 ± 20	pci/l	17
Uranium 233, 234	3.5 ± 0.5	pci/l	0.1	59 ± 2	pci/l	0.2	65 ± 2	pci/l	0.3
Uranium 235	0.1 ± 0.1	pci/l	0.1	1.7 ± 0.3	pci/l	0.1	2.0 ± 0.4	pci/l	0.1
Uranium 238	9.2 ± 0.7	pci/l	0.1	37 ± 2	pci/l	0.1	38 ± 2	pci/l	0.3
Strontium 89, 90	0.2 ± 0.4	pci/l	0.7	-0.2 ± 0.5	pci/l	0.8	0.4 ± 0.6	pci/l	0.9
Plutonium 239, 240	0.00 ± 0.01	pci/l	0.01	0.04 ± 0.01	pci/l	0.01	0.01 ± 0.01	pci/l	0.01
Americium 241	0.00 ± 0.01	pci/l	0.01	0.02 ± 0.01	pci/l	0.01	0.01 ± 0.01	pci/l	0.01
Cesium 137	-0.1 ± 0.5	pci/l	0.9	-0.1 ± 0.7	pci/l	1.2	-0.4 ± 0.7	pci/l	1.2
Tritium	90 ± 220	pci/l	300	2300 ± 300	pci/l	300	2400 ± 300	pci/l	300
Radium 226	0.0 ± 0.3	pci/l	0.3	0.5 ± 0.3	pci/l	0.3	0.4 ± 0.3	pci/l	0.2
Radium 228									

RFW Batch Number: | Client: ROCKWELL (ROCKY FLATS)

Sample Information

RFW Batch ID:	3101-254-100	3101-255-100
Customer ID:	SW094004D	SW094004FB
Laboratory ID:	9612-30910-5-4	9612-30910-5-5
Collection Date:	07/05/89	07/05/89

Radio Chemistry

Gross Alpha	95 ± 31	pci/l	31	-1 ± 1	pci/l	2
Gross Beta	130 ± 70	pci/l	19	0 ± 2	pci/l	3
Uranium 233, 234	55 ± 2	pci/l	0.2	0.0 ± 0.1	pci/l	0.1
Uranium 235	2.2 ± 0.5	pci/l	0.1	0.0 ± 0.1	pci/l	0.1
Uranium 238	34 ± 2	pci/l	0.1	0.0 ± 0.1	pci/l	0.1
Strontium 89, 90	0.2 ± 0.4	pci/l	0.7	-0.3 ± 0.5	pci/l	0.9
Plutonium 239, 240	0.02 ± 0.01	pci/l	0.01	0.00 ± 0.01	pci/l	0.01
Americium 241	0.02 ± 0.01	pci/l	0.01	0.00 ± 0.01	pci/l	0.01
Cesium 137	-0.4 ± 0.6	pci/l	1.1	-0.3 ± 0.7	pci/l	1.2
Tritium	2400 ± 300	pci/l	300	90 ± 220	pci/l	300
Radium 226	0.3 ± 0.3	pci/l	0.4			
Radium 228						

for Bud Summers
Radiochemistry Supervisor

BS/dh dh

30910-03

AccuLabS

IWW807052900Z

Custody Transfer Record/Lab Work Request

WESTON

WESTON Analytics Use Only

Client: Rockwell (Rocky Flats)
Work Order: 2029-33 04
Date Rec'd. ____ Date Due ____
RFW Contact: Jaycll Bergman
Client Contact/Phone: (303) 966 6500

Refrigerator#									
#/Type Container	1Pt/1G	1Pt/1G							
Volume	1Gal	1Gal							
Preservative	HNO3	none							
ANALYSES REQUESTED	1-11 U	12							

WA Use Only Lab ID	Client ID/Description	Matrix	Date Collected								
	SW093004	W	7/5/94	X	X						
	SW095004	W		X	X						
	SW094004	W		X	X						
	SW094004D	W		X	X						
	SW094004FB	W		X	X						

Matrix:
S - Soil
SE - Sediment
SO - Solid
W - Water
O - Oil
A - Air
WI - Wipe
DS - Drum Solids
DL - Drum Liquids
F - Fish
L - EP/TCLP Leachate
X - Other

Special Instructions:
1 = gross alpha 4 = U233 7 = Am241 10 = Ra226 f = filtered
2 = gross beta 5 = U238 8 = Sr90 11 = Ra228 u = unfiltered
3 = U233, 234 6 = Pu239, 240 9 = Cs137 12 = H3

Item/Reason	Relinquished by	Received by	Date	Time	Item/Reason	Relinquished by	Received by	Date	Time
	[illegible]	T. Hadden JD	7/6/94	1000					
	T Hadden JD	[illegible]	7-6-94	17:00					

WESTON Analytics Use Only

Samples Were:
1 Shipped or Hand-Delivered
NOTES:

2 Ambient or Chilled
NOTES:

3 Received Broken/Leaking (Improperly Sealed)
Y N
NOTES:

4 Properly Preserved
Y N
NOTES:

5 Received Within Holding Times
Y N
NOTES:

COC Tape Was:
1 Present on Outer Package Y N
2 Unbroken on Outer Package Y N
3 Present on Sample Y N
4 Unbroken on Sample Y N
NOTES:

COC Record Was:
1 Present Upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

3090-05